

# Commercial Grade Metal Film Resistor



## CMF Series

### Features:

- Metal film resistor
- Conformal coating
- Power ratings from 1/8W to 3W
- Resistance range from 10Ω to 1MΩ



## NOT RECOMMENDED FOR NEW DESIGNS

### Electrical Data

| IRC Type      | Power Rating at 70°C (W) | Resistance Range (Ohms) | Tolerance (±%) | TCR (±ppm/°C) | Max. Working Voltage (V) | Max. Overload Voltage (V) | Dielectric Withstanding Voltage (V) |
|---------------|--------------------------|-------------------------|----------------|---------------|--------------------------|---------------------------|-------------------------------------|
| Standard Size |                          |                         |                |               |                          |                           |                                     |
| CMF-1/8       | 0.125                    | 10 – 1M                 | 1              | 100           | 200                      | 400                       | 400                                 |
| CMF-1/4       | 0.25                     |                         |                |               | 250                      | 500                       | 500                                 |
| CMF-1/2       | 0.5                      |                         |                |               | 350                      | 700                       | 700                                 |
| CMF-1         | 1                        |                         |                |               | 500                      | 1000                      | 1000                                |
| CMF-2         | 2                        |                         |                |               | 500                      | 1000                      | 1000                                |
| CMF-3         | 3                        |                         |                |               | 500                      | 1000                      | 1000                                |

### Environmental Data

|                                 |                                                                                           |
|---------------------------------|-------------------------------------------------------------------------------------------|
| Short-time overload             | $\Delta R/R \leq (\pm 0.5\% + 0.05\Omega)$ , with no evidence of mechanical damage.       |
| Dielectric withstanding voltage | No evidence of flashover, mechanical damage, arcing or insulation breakdown.              |
| Terminal strength               | No evidence of mechanical damage.                                                         |
| Resistance to Soldering heat    | $\Delta R/R \leq (\pm 1\% + 0.05\Omega)$ , with no evidence of mechanical damage.         |
| Pulse Overload                  | $\Delta R/R \leq (\pm 1\% + 0.05\Omega)$ , with no evidence of mechanical damage.         |
| Solderability                   | Minimum 95% coverage.                                                                     |
| Resistance to solvent           | No deterioration of protective coating and markings.                                      |
| Temperature cycling             | $\Delta R/R \leq (\pm 1\% + 0.05\Omega)$ , with no evidence of mechanical damage.         |
| Load life in humidity           | Standard type: $\Delta R/R \pm 3\%$ for $<100K\Omega$ , $\pm 5\%$ for $\geq 100K\Omega$ ; |
| Load life                       | Standard type: $\Delta R/R \pm 1.5\%$ Flame retardant type: $R/R \pm 5\%$                 |

#### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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|               | IRC Type | D (max.) | L (max.) | d ( $\pm 0.02$ ) | H ( $\pm 3$ ) |
|---------------|----------|----------|----------|------------------|---------------|
| Standard Size | CMF-1/8  | 1.85     | 3.5      | 0.5              | 28            |
|               | CMF-1/4  | 2.5      | 6.8      | 0.6              | 28            |
|               | CMF-1/2  | 3.5      | 10.0     | 0.6              | 28            |
|               | CMF-1    | 5.0      | 12.0     | 0.7              | 28            |
|               | CMF-2    | 5.5      | 16.0     | 0.8              | 28            |
|               | CMF-3    | 6.5      | 17.5     | 0.8              | 28            |

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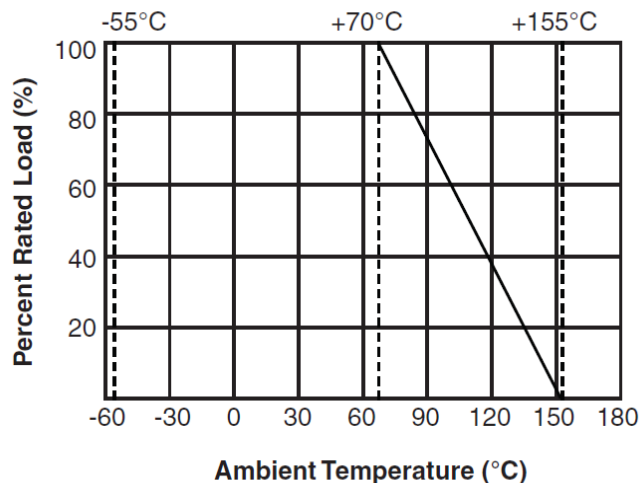
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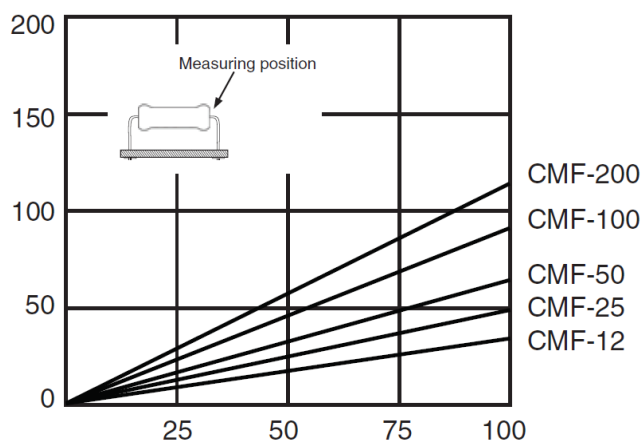
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**Derating Curve**



**Hot Spot Temperature Curve**



## Ordering Data

Specify type, resistance, tolerance, RoHS-Compliance and packaging.  
This example is for a Metal Film Resistor, 1-watt, 1000Ω resistor.

|                                                                                                                                                                                                           |     |   |   |      |   |    |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---|---|------|---|----|----|
| Sample Part No. ....                                                                                                                                                                                      | CMF | - | 1 | 1001 | F | LF | TR |
| IRC Type .....                                                                                                                                                                                            |     |   |   |      |   |    |    |
| CMF - Metal Film Resistor                                                                                                                                                                                 |     |   |   |      |   |    |    |
| Power Rating .....                                                                                                                                                                                        |     |   |   |      |   |    |    |
| (See specs table)                                                                                                                                                                                         |     |   |   |      |   |    |    |
| Resistance Value (EIA 4-digit code) .....                                                                                                                                                                 |     |   |   |      |   |    |    |
| (≥ 100Ω - First 3 significant digits plus 4th digit multiplier)<br>Example: 100 ohms = 1000, 1000 ohms = 1001<br>(>100Ω - "R" is used to designate decimal)<br>Example: 10Ω = 10R0, 1Ω = 1R00, 51Ω = 51R0 |     |   |   |      |   |    |    |
| Tolerance .....                                                                                                                                                                                           |     |   |   |      |   |    |    |
| F = ±1%; G = ±2%; J = ±5%                                                                                                                                                                                 |     |   |   |      |   |    |    |
| RoHS- compliance .....                                                                                                                                                                                    |     |   |   |      |   |    |    |
| LF = RoHS compliant construction                                                                                                                                                                          |     |   |   |      |   |    |    |
| Packaging .....                                                                                                                                                                                           |     |   |   |      |   |    |    |
| TR = tape and reel only                                                                                                                                                                                   |     |   |   |      |   |    |    |

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